



UNITED STATES PATENT AND TRADEMARK OFFICE

Elh

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,769	03/03/2004	Kazunori Yamanaka	040094	3203

23850 7590 05/02/2005

ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP
1725 K STREET, NW
SUITE 1000
WASHINGTON, DC 20006

EXAMINER

CAO, HUEDUNG X

ART UNIT PAPER NUMBER

2821

DATE MAILED: 05/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/790,769

Applicant(s)

YAMANAKA ET AL.

Examiner

Huedung X. Cao

Art Unit

2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2004.
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1,2,4,5,8,11 and 13 is/are rejected.
7) ☐ Claim(s) 3,6,7,9,10 and 12 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 03 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 06/06/04.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 4, 5, 8, 11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over TORIYAMA (US 5,121,127) in view of HEIN (High Temperature Superconductor Thin Film at Microwave Frequencies, pages 302-305).

As per claim 1, Toriyama teaches an antenna coupling module comprised of a planar antenna (Toriyama, figure 12, antenna 15) and a substrate (Toriyama, figure 12, dielectric layer 14) forming a planar superconductive high frequency circuit arranged in a perpendicular direction with respect to the element surface of said planar antenna and having said planar antenna and said superconductive high frequency circuit electromagnetically coupled (Toriyama, column 7, lines 44-66). It is noted that Toriyama does not explicitly disclose a planar superconductive high frequency circuit as claimed. However, Hein teaches such superconductive circuit is widely use in the art (Hein, page 302-307). It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ "superconductive high frequency circuit" for the antenna doing do it would enhance the function of the antenna.

Claim 2 adds into claim 1, wherein the perpendicular distance of the electromagnetically coupled space has a length of not more than $1/4$ of the effective wavelength (Toriyama, column 8, lines 58-60).

Claim 4 adds into claim 1, wherein said planar antenna and said superconductive high frequency circuit have a $1/4$ wavelength type feeder line, respectively as a coupling circuit thereof (Toriyama, column 8, lines 58-60).

Claim 5 adds into claim 4, wherein a dielectric body is arranged between $1/4$ feeder lines for coupling circuit of said planar antenna and said superconductive high frequency circuit (Toriyama, column 8, lines 58-60).

Claim 8 adds into claim 1, wherein said planar antenna has at least one type of antenna element of the dipole type, patch type, and log-periodic type (Toriyama, column 7, lines 18-20).

Claim 11 adds into claim 8, wherein said planar antenna is a non superconductive element (Toriyama, column 7, lines 26-27).

Claim 13 is similar in scope to claim 1; therefore, it is rejected for the same reason.

Allowable Subject Matter

3. Claims 3, 6, 7, 9, 10, and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. The following is a statement of reasons for the indication of allowable subject matter: Prior Art fails to teach that the effective wavelength includes from a microwave to a milliwave band; at least one type of ingredient selected from the group consisting of magnesium oxide, mullite, forsterite, titanium oxide, lanthanum aluminate, sapphire, alumina, strontium titanate, magnesium titanate, calcium titanate, quartz glass, polytetrafluoro-ethylene, polyethylene, a polyimide, polymethylmethacrylate, a glass-epoxy composite, and a glass polytetrafluoroethylene composite is used as the ingredient of the dielectric body.

Art Unit: 2821

Inquires

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huedung Cao whose telephone number is (571) 272-1939.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong, can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

6. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, consisting of a series of loops and a long horizontal stroke extending to the right.

Huedung Cao
Patent Examiner